LICOS Centre for Institutions and Economic Performance

Centre of Excellence

LICOS Discussion Paper Series

Discussion Paper 358/2014

The Political Economy of Geographical Indications

Koen Deconinck and Johan Swinnen

Faculty of Economics and Business

LICOS Centre for Institutions and Economic Performance
Waaistraat 6 – mailbox 3511
3000 Leuven
BELGIUM

TEL:+32-(0)16 32 65 98
FAX:+32-(0)16 32 65 99
http://www.econ.kuleuven.be/licos

The Political Economy of Geographical Indications

Koen Deconinck and Johan Swinnen

LICOS Centre for Institutions and Economic Performance
& Centre for Economic Studies
Faculty of Business and Economics
KU Leuven

Version: November 6, 2014

Abstract

Despite the growing importance of geographical indications (GI), relatively little attention has been devoted to studying the optimal size of a GI region, as well as how lobbying by interest groups may affect the actual size. We develop a political economy model of the size of geographical indications, taking into account possible effects on perceived quality as well as on cost sharing among producers. We show that the political process may result in a GI area that is smaller or larger than the social optimum, not just depending on the relative political influence of existing and potential producers, but also on how changes in quality affect consumer welfare.

The authors thank Julian Alston, Paola Corsinovi, Giulia Meloni, Erik Schokkaert, Thijs Vandemoortele, Frank Verboven and Steve Ziliak for insightful comments and discussion. All remaining errors are our own. This research was financed with Methusalem funding of the KU Leuven Research Council.

Introduction

A geographical indication (GI) is a collective label, backed by government regulation, to certify the geographical origins of a product. GIs are used for a wide variety of products and the number of GIs has been growing steadily. In parallel with the growing importance of GIs, several authors have explored the economics of GIs, with some positing welfare gains due to the resolution of asymmetric information problems (e.g. Moschini et al., 2008) and others claiming that GIs can be used as tools for extracting rents from consumers, e.g. by systematically oversupplying quality (Mérel and Sexton, 2012).

Geographical indications are in the midst of at least three distinct debates. A first debate concerns the actual link between the quality of a product and the location or "terroir" where it is produced. The debate about terroir is important given the strong emphasis in existing GI regulations on the link between the geographical area and the product for which a GI is requested. For instance, the World Trade Organization's definition of a GI (as part of the TRIPS agreement on intellectual property) requires that the product possess a "given quality, reputation, or other characteristic" that is "essentially attributable to its geographical origin" (WTO, 1994; Marette et al., 2008). However, existing empirical evidence on the link between "terroir" and quality is mixed. Gergaud and Ginsburgh (2008) found that price and quality measures of Bordeaux wines are influenced by technological choices more than by the "terroir" of the vineyard. By contrast, Ashenfelter and Storchmann (2010) found that physical site attributes as well as solar radiation are important determinants of vineyard quality in the Mosel Valley. In a study of vineyard sales prices in the Willamette Valley in Oregon, Cross et al. (2011) find that physical site attributes (such as slope, elevation, or soil quality) do not explain observed sales prices. On the other hand, they find that prices of vineyards are strongly influenced by whether they are located in a GI. These results suggest that the expected revenues of a vineyard depend more on the collective label of the GI than on the actual intrinsic qualities of the wine as determined by “terroir”.

A second debate concerns the status of geographical indications in international trade. While some countries consider GIs to be a way to solve information problems, other countries interpret GIs as an unnecessary protection of producers from an established region against new entrants from a different region. These differences of opinion have led to what Josling (2006) described as a “war on terroir” in the context of WTO negotiations.

A third debate, which so far has not received much academic attention, concerns the question of how large the optimal area of a GI should be. The delimitation of GI areas occurs through government regulation.[1] Like other policy decisions, the choice of the size of the GI area can have both welfare and distributional consequences, which will tend to influence decision making.

The history of the Champagne GI offers a clear example. In the early 20th century, when the Champagne region was officially delimited for the first time, there were major disputes over the precise definition of the area. The original proposal included only villages in the Marne department, while producers in the neighboring Aube department claimed that they should also be included. The disagreement led to bitter conflicts, eventually erupting into violence in 1911 (Simpson, 2011). In recent years, the expansion of the Champagne area is again on the agenda. Given that vineyards in Champagne can fetch prices of €1 million per hectare or more compared to prices of around €4000 per hectare outside the region, there is clearly a lot at stake (Stevenson,

[1] In France, for instance, a request to create or change a GI area needs to be submitted at the *Institut National d’Appellations d’Origine* (INAO), which appoints a committee to study the request. The committee eventually proposes a delimitation of the GI area, which is then subject to a “national opposition procedure” whereby any interested party can voice complaints regarding the proposed GI area. In the end, INAO decides on the delimitation of the GI area which is then sent to the Ministry of Agriculture for approval. Since 2008, the European Commission ultimately approves or disapproves the proposed GI area after consulting the EU Member States.

2008). A crucial question regarding GIs is therefore how large the optimal area of a GI should be, and how the political process determines the actual area.

In this paper we develop a political economy model which incorporates four salient facts about GIs. First, an expansion of the GI area leads to an expansion of total production which depresses the price of the GI product (assuming demand is not perfectly elastic). Second, an expansion of the GI area means that certain fixed costs incurred by the GI area (such as costs for marketing) can be spread over a larger number of producers, thus reducing the cost for existing producers. Third, the expansion of the GI area may have a negative effect on (actual or perceived) quality, whether because of an actual decline in the intrinsic quality of the product as the area expands (due to e.g. differences in "terroir") or because a larger area almost by definition is less "typical" of a given geographical area. Fourth, the decision over the size of the GI area is taken by government bodies which may be influenced by various interest groups, and a political economy perspective is thus necessary to study the outcome. We model the political decision over the GI area as the maximization of a weighted objective function by the government, with different weights representing different degrees of political influence. We show under which conditions the political equilibrium would be closer or further away from the social optimum. A general conclusion is that the politically determined GI region may be too large or too small from a social welfare perspective.

The question of how the size of a GI is determined has not received much attention in the literature, with the exception of Landi and Stefani (2013) and Langinier and Babcock (2010). Our model incorporates the effects identified by these authors but expands the analysis in several ways. First, the model of Landi and Stefani (2013) does not allow for decreases in quality as the GI region expands. Yet, in reality, an expansion is often criticized on the grounds that it would adversely affect quality. If this quality argument is correct, an expansion of the GI area might be a bad idea from the point of view of social welfare and not merely from the point of view of the existing producers. Moreover, Landi and Stefani (2013) do not take into account possible "cost sharing" effects of a GI region, where certain fixed costs for marketing or certification are shared by producers. Langinier and Babcock (2010) do take into account the 'cost sharing' effect of an expansion of the GI area, which they model as a club which enables its members to distinguish themselves from low quality producers. However, this setup does not lend itself well to analyzing an actual expansion of a GI area. Once a GI area is defined, entry is free in the sense that any producer inside the region who meets the criteria can obtain GI status (Moschini et al., 2008). Moreover, in reality the size of GI areas is determined by government agencies, not by producers.

Our paper is organized as follows. After discussing the general setup and deriving the effects of a change in the GI area on the welfare of consumers and of producers inside and outside of the GI region, we determine the socially optimal size of a GI region and show how it depends on the relative size of the negative "quality" effect and the positive "output" effect of an expansion on consumer welfare, as well as on the magnitude of variable costs related to managing the GI area. Following Grossman and Helpman (1994) and Swinnen and Vandemoortele (2008, 2011), we then model the political decision over the GI area as the maximization of a weighted objective function by the government, with different weights representing different degrees of political influence. To compare the social optimum with the political equilibrium, we consider several possible cases of influence of interest groups, studying the case where the government maximizes aggregate producer welfare (treating 'insiders' and 'outsiders' as equal), as well as the cases where the government maximizes only 'insider' welfare or (for illustrative purposes) the unlikely case where the government maximizes only 'outsider' welfare. We show how the political equilibrium can graphically be represented as being a weighted combination of these extreme scenarios, and discuss how the political equilibrium compares to the social optimum. Next, we discuss a number of issues related to the role of non-GI production, the effects of international trade, and the possibility of discontinuous changes in quality. A final section concludes by offering some policy implications.

The Model

Producers

Consider a region with a continuum of producers indexed by their distance i from the center of the region. All producers in the region produce the same product but vary in the quality of their production. We assume that their quality level can be represented by a continuous "quality function" $\sigma(i) > 0$ which is decreasing as we move away from the center of the region ($\sigma_i < 0$).[2]

We thus assume that the quality of a producer is given exogenously and depends only on the location of the producer – i.e. whether the producer is located close to the center of the region or rather on the periphery.[3] The assumption that the quality of a producer depends only on his location is a simplification which can be defended on two grounds. First, there could be objective aspects of the region, such as the soil, the micro-climate, local traditions or other factors which strongly influence the actual quality of the product. It is precisely this emphasis on the importance of "terroir" which underlies the official regulations regarding GIs. Second, even if there was no real link between "terroir" and the objectively verifiable qualities of a product, consumers might attach intrinsic value to the region where the product originates from. In this case, the geographical indication would serve as a guarantee that the product is indeed typical of

[2] Throughout, subscripts denote partial derivatives.

[3] We abstract from the possibility that producers themselves can make a choice over the level of quality to be attained, or that the governing body of the geographical indication sets quality standards (as in Mérel and Sexton, 2012).

the region. To the extent that the intrinsic quality of the product is determined by “terroir”, it is clear that increasing a GI region at some point must mean that the soil, climate, local traditions or other factors which constitute “terroir” become less suitable to create a qualitative product. Even if “terroir” is unimportant to intrinsic quality, an expansion of the region may decrease the perceived quality for consumers if they attach importance to the degree to which a product is typical of a certain region. For instance, if the Champagne region were defined so broadly as to cover the whole of France, the geographical indication “Champagne” would probably lose much of its appeal as well as the corresponding price premium, even if the intrinsic quality of sparkling wine remained the same.[4]

The delineation of a geographical indication (GI) by deciding on its area implicitly determines output and average quality.[5] To keep the model simple, we assume that producers have a fixed and identical productivity of one unit per unit of land. Given this assumption, aggregate production is equal to the total area of the GI region, and we will use the symbol x to denote both. Average quality is then given by $s(x) = \frac{1}{x}\int_0^x \sigma(i)di$. Since quality $\sigma(i)$ is decreasing in i, the same is true for average quality as a function of total area: $s_x < 0$.

Following Moschini et al. (2008) and Langinier and Babcock (2010), we assume that managing the GI region implies costs of $F + cx$ where F represents fixed costs (e.g. marketing expenses) and c denotes variable costs (e.g. certification costs). Following Moschini et al. (2008), we assume that these costs are borne by the producers in proportion to their output: GI producers pay a per-unit charge of $c + \frac{F}{x}$. For simplicity, we assume that production itself is

[4] Other mechanisms might have a similar effect. For instance, there could be an indirect effect working through total quantity produced (e.g. increased availability turning the product into a commodity instead of an exclusive product) or through the total number of producers (e.g. free riding problems), both of which would in turn be a function of the size of the area.
[5] While we use the term “area”, the model is best thought of as measuring the GI on a line (as shown in the Figures).

costless, and we normalize the profits of producers outside the GI region to zero. In a GI region with area x, producer surplus is then given by

$$\Pi^i(x) = p - c - \frac{F}{x} \tag{1}$$

for a GI "insider" at distance i, and zero for a GI "outsider". The aggregate surplus of insiders for a given area x is given by

$$\Pi^I(x) = \int_0^x \Pi^i(x)di = (p-c)x - F \tag{2}$$

Consumers

We assume that without a geographical indication standard, consumers are unable to distinguish products from different producers and/or from different regions. With a geographical indication standard, by contrast, consumers can distinguish between products from the GI region and those from outside, but they are still unable to discriminate between different producers inside the GI. Consumers value quality, but since they cannot distinguish producers within a region, their perceived quality is the average quality s of producers in the GI region. We assume that consumer utility of a representative consumer is given by a utility function $u(x,s)$ where utility is concave in both quantity x and quality s ($u_x > 0, u_{xx} < 0, u_s > 0, u_{ss} < 0$).[6] Moreover, we assume that a higher quality level increases the marginal utility of consumption ($u_{xs} > 0$). Given these assumptions, the consumer maximizes consumer surplus

$$\Pi^C = u(x,s) - px \tag{3}$$

leading to an inverse demand function of the form

$$p(x,s) = u_x(x,s) \tag{4}$$

[6] Alternatively, we could work directly with an inverse demand curve as in Spence (1975). Working with the utility function makes the notation easier, however.

As a result of our assumptions on the utility function, the demand curve is downward sloping ($p_x < 0$) and shifts upward if quality increases ($p_s > 0$).

Impact of a Change in the GI Area

How does a change in the GI area (x) affect producer surplus? To assess this, we distinguish between the effects on existing producers (insiders) and new entrants (outsiders). The effect of an increase in the area on insider surplus is

$$\frac{\partial \Pi^I}{\partial x} = \int_0^x \frac{\partial \Pi^i}{\partial x} di = x(p_x + p_s s_x) + \frac{F}{x} \tag{5}$$

An increase in the GI area depresses insiders' revenues (first term) while it leads to better cost sharing (second term). The first term, $x(p_x + p_s s_x)$, is negative since an increase in the area leads to a higher quantity, which induces a lower price ($p_x < 0$); in addition, the increase in the area leads to a lower quality which is also associated with a lower price ($s_x < 0$). Graphically, the first effect is the result of a downward movement along the demand curve while the second effect is the result of a downward shift of the demand curve. The second term, $\frac{F}{x}$, is positive and captures the fact that an expansion of production reduces the per-unit charge of existing producers.

An expansion of the GI area implies that some former "outsiders" can now sell their product under the GI label but have to pay the per-unit charge $c + \frac{F}{x}$. For an infinitesimal increase in the area, the change in surplus for the marginal outsider who enters the GI region is given by $p - c - \frac{F}{x}$. The surplus for all other outsiders remains zero. The effect of an increase in x on the aggregate surplus of outsiders is thus given by

$$\frac{\partial \Pi^O}{\partial x} = p - c - \frac{F}{x} \tag{6}$$

Combining these effects, the effect of a change in the GI area on aggregate producer surplus is given by

$$\frac{\partial \Pi^P}{\partial x} = \frac{\partial \Pi^I}{\partial x} + \frac{\partial \Pi^O}{\partial x} = p - c + x(p_x + p_s s_x) \tag{7}$$

The effect of a change in the area on consumer surplus is given by

$$\frac{\partial \Pi^C}{\partial x} = u_s s_x - x(p_x + p_s s_x) \tag{8}$$

The first term, $u_s s_x$, represents the direct utility impact of the change in average quality as a result of the increase in area. This term is negative since an increase in the area decreases average quality. The second term, $x(p_x + p_s s_x)$, is the marginal change in consumer expenditures, which has a positive effect on consumer surplus since prices go down if the GI area increases.

The Socially Optimal Area

As a benchmark to compare the political equilibrium to, we first derive the socially optimal area. Social welfare is given by the sum of consumer surplus and aggregate producer surplus:

$$W = u(x, s) - cx - F \tag{9}$$

Maximizing with respect to area x, the first order condition is

$$\frac{\partial W}{\partial x} = u_x + u_s s_x - c = 0 \tag{10}$$

We thus see that the "rent transfer" $x(p_x + p_s s_x)$ cancels out. Equation (10) defines the optimal area x^* of the GI region, assuming that the resulting social welfare is positive, i.e. $u(x^*, s) - cx^* \geq F$.

An increase in the area x affects social welfare in three ways. First, it increases aggregate production x which has a positive effect on utility. Second, the increase in area reduces the average quality ($s_x < 0$) which has a negative effect on utility. Third, the expansion of production means that extra variable costs c will be incurred. The optimal area of the GI balances these three effects.

Using the fact that $u_x = p$, equation (10) defines an interesting relationship between price and marginal cost:

$$p - c = -u_s s_x \tag{11}$$

Figure 1 shows this relationship, denoting the social optimum by x*. The resulting consumer price p* is above the marginal cost c of operating the GI region. Equation (11) can be rewritten as:

$$\frac{p-c}{p} = -\frac{u_s s_x}{u_x} \tag{12}$$

That is, in the social welfare optimum, the markup of price over marginal cost should equal the relative effect on consumer utility of the change in quality ($u_s s_x$) and the change in quantity (u_x). Since all other terms are positive, the markup in the optimum will be positive if $s_x < 0$, as shown in Figure 1. By contrast, if there is no quality effect ($s_x = 0$), the optimal markup is zero. In that case, the welfare optimum is to expand the GI region until price equals marginal cost.

Importantly, the markup does not arise because of the need to offer incentives to producers, as both quality and quantity are exogenously given. Rather, because quality effects of a further expansion would negatively affect consumer surplus, the optimal area will be smaller than what would be necessary to drive prices down to the marginal cost of operating the GI region. In short, if quality depends on the area of the GI region, the socially optimal GI region implies rents for producers in the GI region, shown in Figure 1 by the shaded area.

However, this result needs to be qualified in two ways. First, if producers are forced to bear the fixed costs themselves, they will only benefit if the rents exceed the fixed cost ($(p - c)x^* \geq F$). By contrast, from a social welfare perspective, the GI region is beneficial as soon as the sum of consumer surplus and producer rents exceeds the fixed cost (i.e. $u(x^*, s) - cx^* \geq F$).[7] The social planner would thus be willing to introduce GI regions where producer rents are smaller than the fixed cost, as long as the difference is made up by consumer surplus. But in those cases, producers would not be willing to implement the GI region. The practical implementation of the GI region would then necessitate government intervention, e.g. by subsidizing the fixed costs of operating the region.[8]

A second qualification is that our result of rents accruing to the producers depends on our assumption of exogenously given quantities. A typical assumption in the literature is that producers are perfectly competitive inside the GI region (e.g. Mérel and Sexton, 2012; Moschini et al., 2008), which implies that rents will be competed away. On the other hand, since land is the scarce factor of supply, there would still be some rents captured by the landowners (Moschini et al., 2008). As we see here, this result may be consistent with social welfare maximization.

The Political Equilibrium

Given the conflicting interests of consumers, "insider" producers, and "outsider" producers, the question is how the actual size of a GI region will be determined by the government. We study this question using the political economy approach of Grossman and Helpman (1994), first applied to quality and standards by Swinnen and Vandemoortele (2008, 2011). We follow this approach in assuming that the government maximizes its own objective function, which consists

[7] Since the curve labeled p in Figure 1 captures both the quality and quantity effect, it is not possible to interpret the triangle below p as consumer surplus (which is defined for a constant quality level).
[8] Similar results can be found regarding optimal product variety in the presence of fixed costs; see Spence (1976).

of a weighted sum of social welfare and contributions from interest groups. The government can only use one instrument, the total area x of the GI region. We assume that producers inside an existing GI region are politically organized, as are the "outsiders", but consumers are not organized.[9]

Our approach in modeling the lobbying process requires some modifications compared to the traditional models following Grossman and Helpman (1994), which assume fixed and exogenously given lobbying groups. By contrast, in the present setting, interest groups change as the GI area expands or shrinks. For our definition of the lobbying group of the insiders we will assume that as new producers are added to the GI area, the corresponding group of insiders increases gradually in the process.[10] The "insider" interest group uses a truthful contribution schedule of the form $C^I(x) = max\{0, \Pi^I(x) - b^I\}$ defined over the different possible values x of the area of the GI region. In this formulation, b^I is a constant, representing a minimum level of profits the interest group does not wish to spend on lobbying.

Likewise, our definition of the lobbying group of the outsiders needs some care. In particular, increasing the size of the GI region from an area x_0 to an area x_1 only affects outsiders located in this interval and has no effect on outsiders located beyond x_1. As a result producers beyond x_1 have no reason to lobby for an increase in the area to x_1. Taking this argument to its logical conclusion, every outsider is willing to make a personal contribution only to have the GI area expanded to include just himself. Given that joining the GI region leads to a profit increase of $\left(p - c - \frac{F}{x}\right)$ for an outsider, this will be the maximum an outsider is willing to pay. The marginal contribution of outsiders just outside area x thus equals $\left(p - c - \frac{F}{x}\right)$. The

[9] This does not affect our results. As the government maximizes a weighted sum, what matters are the relative weights.

[10] For instance, the interests of existing GI producers are often represented by a producer organization managing the GI region. Expanding the region would then naturally expand the membership of this organization.

lobby group of the outsiders can then be thought of as a continuum of producers, each willing to pay $\left(p - c - \frac{F}{x}\right)$ if the area is expanded to include himself. We therefore write the total contribution of the outsiders as $C^O(x) = \int_{x_0}^{x} \left(p - c - \frac{F}{x}\right) di$ starting from an initial area x_0.

The government's objective function $\Pi^G(x)$ is a weighted sum of the interest group contributions weighted by their relative lobbying strength (assumed exogenously given), and social welfare:[11]

$$\Pi^{\mathrm{G}}(x) = \alpha^I C^I(x) + \alpha^O C^O(x) + \alpha^W W(x) \tag{13}$$

The government chooses the size of the GI region to maximize its objective function (13). Each possible size of the GI region corresponds to a certain level of profits for insiders and outsiders, and hence also to a certain level of contributions. The government receives higher contributions from an interest group if the proposed size of the GI region creates higher profits for that group. Therefore maximizing the contributions from one interest group is equivalent to maximizing their profits. The government's optimal GI region is defined by the following first order condition:[12]

$$\frac{\partial \Pi^{\mathrm{G}}(x)}{\partial x} = \alpha^I \frac{\partial \Pi^{\mathrm{I}}(x)}{\partial x} + \alpha^O \left(p - c - \frac{F}{x}\right) + \alpha^W \frac{\partial W(x)}{\partial x} = 0 \tag{14}$$

To understand the general political equilibrium, it is instructive to consider three special cases. The first case is where the government aims to maximize aggregate producer welfare, corresponding to a situation where $\alpha^I = \alpha^O > 0$ and $\alpha^W = 0$ in equation (14). The second case is where the government focuses only on maximizing insider producer welfare, which would be

[11] In the traditional formulation, $\alpha^W = 1$. However, it aids our exposition if we explicitly attach a weight to social welfare. Since what matters are the *relative* weights, this does not influence the results.

[12] If the lobbying strength of insiders and outsiders is zero ($\alpha^I = \alpha^O = 0$), this reduces to $\frac{\partial W(x)}{\partial x} = 0$ and the political equilibrium coincides with the social optimum.

the case if $\alpha^I > 0$ while $\alpha^O = \alpha^W = 0$. Conversely, the third case is where the government only maximizes the welfare of outsider producers, corresponding to $\alpha^I = \alpha^W = 0$ and $\alpha^O > 0$. We discuss these three cases in turn, and then present the political equilibrium in the more general case.

Maximizing Aggregate Producer Welfare

If insiders and outsiders have equal lobbying weight, while the government is not concerned at all with social welfare, maximizing the government's objective function is equivalent to maximizing aggregate producer welfare. The first order condition is

$$\frac{\partial \Pi^P}{\partial x} = p + x(p_x + p_s s_x) - c = 0 \tag{15}$$

The first term gives the positive impact on aggregate producer revenues of the extra production made possible by expanding the GI area. The second term denotes the negative impact on aggregate producer revenues caused by the expansion of the GI area. The third term denotes the increase in variable costs due to an increased area. The optimal area from the point of view of aggregate producer welfare thus balances these effects. The situation is depicted in Figure 2, denoting the resulting area by x^P. As shown, compared to the social optimum, two effects play a role, which we call "rent-seeking through quantity" (denoted by A in Figure 2) and "rent-seeking through quality" (B).

To see both effects algebraically, we can rearrange the first order condition to give

$$\frac{p-c}{p} = -\frac{u_s s_x}{u_x} - \frac{1}{\eta^D} - \left(\frac{x p_s s_x}{u_x} - \frac{u_s s_x}{u_x}\right) \tag{16}$$

The first term reflects the markup which would hold in the social optimum (see equation (12)). The other terms reflect how this optimal markup is distorted by aggregate producer welfare maximization. The second term, $-\frac{1}{\eta^D}$, is the traditional "inverse elasticity" rule, reflecting "rent-seeking through quantity". This term will always tend to increase the markup relative to the social optimum. Notice that if there was no quality effect ($s_x = 0$), the GI region would still be set to lead to a markup of $-\frac{1}{\eta^D}$ and hence rents for producers. The "rent-seeking through quantity" effect (A) will thus always tend to decrease the area, as a smaller area implies a restriction of production and thus a higher producer price, ceteris paribus.

The third term, $-\left(\frac{xp_s s_x}{u_x} - \frac{u_s s_x}{u_x}\right)$, captures the "rent-seeking through quality" effect (B) and could be positive or negative, depending on whether the price effect dominates the direct utility effect or not. Producers do not take into account the effect of lower quality on consumer utility ($u_s s_x$), but only its effect on price through consumers' marginal willingness to pay ($xp_s s_x$). Depending on how a change in quality affects demand, the impact on price may be larger or smaller than the impact on consumer utility. If a decrease in quality reduces prices strongly, producers will prefer a smaller region even if there is only a limited effect on consumer utility. The resulting area will be socially suboptimal. Conversely, if lower quality does not affect prices but strongly affects consumer utility, the preferred area of producers will be larger than what is socially optimal. Thus, the "rent-seeking through quality" effect can go in the direction of increasing or decreasing the area, depending on how changes in quality affect utility and prices.

Maximizing Insider Welfare

If insiders have positive lobbying weight ($\alpha^I > 0$) while outsiders have zero lobbying weight and the government is not concerned with social welfare ($\alpha^O = \alpha^W = 0$), the government would set the GI region to maximize insider welfare. The corresponding first order condition is

$$\frac{\partial \Pi^I}{\partial x} = x(p_x + p_s s_x) + \frac{F}{x} = 0 \tag{17}$$

The first term is the marginal effect on insider revenues of expanding the GI region. Since expansion leads to lower prices, while the output of insiders remains constant, this effect is always negative. The second term is the cost sharing effect.

If the cost sharing effect was absent, the effect of an expansion on insider surplus would always be negative. Insiders would have an incentive to try to get rid of the producers at the periphery, as this would at the same time raise average quality and restrict quantity and thus increase the price for the remaining producers. Equation (17) would in that case imply a continuously shrinking GI area. External economies of scale in cost sharing prevent this.

Comparing equation (15) maximizing aggregate producer welfare with equation (17) maximizing insider welfare, we see that producers now equate $-x(p_x + p_s s_x)$ with $\frac{F}{x}$ instead of with $p - c$. The situation is depicted in Figure 3. The area x^I, defined by equation (17), is smaller than area x^P, an effect labeled C in the figure.[13]

Maximizing Outsider Welfare

The third special case of equation (14) is when the government is only concerned with the outsiders. Maximizing the government's objective function then leads to

$$p - c = \frac{F}{x} \tag{18}$$

[13] In theory, it is possible that x^I lies to the right of x^P. However, in that case, the curve $\frac{F}{x}$ would lie above $p - c$, which implies that $F > (p - c)x$ for both x^P and x^I. Since producers would not be able to cover their fixed costs, they would not implement the GI area. Hence, if the GI area is implemented at all, it must be the case that the group of insider producers prefers a smaller GI area than that which would maximize aggregate producer surplus. As demonstrated in the Appendix, when outsiders can make side payments to the insiders, the insiders fully internalize the effects of an expansion on outsiders. As a result, maximizing insider welfare becomes equivalent with maximizing aggregate producer welfare and the resulting equilibria are the same.

That is, if the government maximizes outsider welfare, the result is an equilibrium where the rents $p - c$ are just sufficient to cover fixed costs. In Figure 3, the resulting equilibrium (denoted by x_O) corresponds to the right-most intersection of $p - c$ and $\frac{F}{x}$. Interestingly, if there is no quality effect ($s_x = 0$), the social optimum would be $p - c = 0$ and x^O would be too small from a social welfare perspective.[14] If there is a quality effect, x^O can either be too large or too small depending on whether $-u_s s_x$ intersects $p - c$ to the left or to the right of x^O. However, if the social optimum x^* is greater than x^O, producers cannot recover their fixed costs in the social optimum.

Given that outsiders are a heterogeneous group and hence probably less organized than the insiders, it may seem unrealistic to assume that the government would give consideration only to outsiders. However, this case is in fact equivalent to a situation where the government lets anyone join the GI region who wishes to do so (and who is willing to pay the per-unit charge $c + \frac{F}{x}$). The expansion would continue until at the margin, joining the GI region does not bring extra profits for producers. The case where outsider welfare is maximized can thus be interpreted as an "open access" equilibrium.

To summarize, the three special cases lead to a clear ranking: we find that $x^I < x^P < x^O$. However, with respect to the social welfare optimum x^* the conclusions are less clear-cut. Since $-u_s s_x$ and $p - c$ may intersect anywhere, the social welfare optimum could be smaller than x^I, larger than x^O, or anywhere in between.

---

[14] This result follows from our assumption that the fixed cost F is financed using a per-unit charge, effectively transforming a fixed cost into a marginal cost, and thus restricting production. A similar result can be found in Moschini et al. (2008).

The Political Equilibrium

Having studied the three special cases, we now turn to the political equilibrium in general, i.e. for arbitrary values of the lobbying weights α^I and α^O and the weight attached to social welfare α^W. Substituting the appropriate expressions in equation (14), maximization of the government's objective function implies

$$\frac{\partial \Pi^G(x)}{\partial x} = \alpha^I \left(x(p_x + p_s s_x) + \frac{F}{x} \right) + \alpha^O \left(p - c - \frac{F}{x} \right) + \alpha^W (p - c + u_s s_x) = 0 \quad (19)$$

We normalize the weight $\alpha^W = 1$, divide through by $(1 + \alpha^I)$ and rearrange:

$$\left(\frac{\alpha^I - \alpha^O}{1+\alpha^I} \right) \left(\frac{F}{x} \right) + \left(\frac{1+\alpha^O}{1+\alpha^I} \right) (p - c) = \left(\frac{\alpha^I}{1+\alpha^I} \right) \left(-x(p_x + p_s s_x) \right) + \left(\frac{1}{1+\alpha^I} \right) (-u_s s_x) \quad (20)$$

To interpret this expression, note that the left-hand side is a weighted sum of $\frac{F}{x}$ and $p - c$. Likewise, the right-hand side is a weighted sum of $-x(p_x + p_s s_x)$ and $-u_s s_x$. These components all have a clear graphical interpretation, as discussed in earlier sections. If we assume that the lobbying strength of insiders is greater than that of outsiders ($\alpha^I > \alpha^O$), the weights on both sides of the equation are between zero and one, and sum up to one. We can then interpret the political equilibrium $x^\#$ as the intersection of two curves, both of which are a "weighted average" of curves already encountered previously. Figure 4 shows this graphically.

The first panel of Figure 4 shows the right-hand side of equation (20) as a weighted average of $-x(p_x + p_s s_x)$ and $-u_s s_x$. If the lobbying power of insiders is zero ($\alpha^I = 0$), this curve coincides with $-u_s s_x$, the direct utility impact of a decrease in quality. By contrast, as the lobbying power of insiders grows, the curve moves closer to $-x(p_x + p_s s_x)$, the negative price impact of an increased GI region through expanded quantity and lower quality.

The second panel of Figure 4 shows how the left-hand side of equation (20) can be seen as a weighted combination of $\frac{F}{x}$ and $p - c$. If outsiders and insiders have equal lobbying weights ($\alpha^I = \alpha^O$), the left-hand side coincides with $p - c$. If insiders have greater lobbying weight ($\alpha^I > \alpha^O$), the left-hand side would converge on $\frac{F}{x}$ as α^I grows larger.

When outsiders have greater lobbying power than insiders, and α^O grows larger, the left-hand side of equation (20) would no longer lie in-between $\frac{F}{x}$ and $p - c$. To see what happens if α^O grows large, multiply both sides by $\frac{1+\alpha^I}{1+\alpha^O}$. The right-hand side then converges to zero while the left-hand side converges on $\left(p - c - \frac{F}{x}\right)$. Hence, this scenario results in the condition $p - c = \frac{F}{x}$, which defines the "open access" equilibrium x^O.

The third panel of Figure 4 shows how the combination of the two "weighted" curves determines the political equilibrium. Although the exact optimum depends on the specifics of the lobbying weights, it is clear that the special cases we considered earlier, as well as the social welfare optimum, are boundary solutions. Our political economy approach thus defines the political equilibrium $x^{\#}$ as lying somewhere in between four extreme cases, corresponding to the social welfare optimum x^*, the optimum for aggregate producer surplus x^P, the optimum for the insiders x^I and the "open access" outcome x^O.

Comparison of the Social Optimum and the Political Equilibrium

To see when the political equilibrium would be below or above the social optimum, we can evaluate the derivative of the government's objective function at the social optimum x^*:

$$\left.\frac{\partial \Pi^G(x)}{\partial x}\right|_{x^*} = \alpha^I \left.\frac{\partial \Pi^I(x)}{\partial x}\right|_{x^*} + \alpha^O \left(p - c - \frac{F}{x^*}\right) \tag{21}$$

If this expression is zero, then the political equilibrium would coincide with the social optimum; if positive, the political equilibrium would set a GI area greater than the social optimum, and if negative, the political equilibrium will be smaller than the social optimum.

Clearly, the expression will be zero if $\alpha^I = \alpha^O = 0$ (i.e. the government is not influenced by lobbying). To get more insight, we study the case where the government assigns equal weight to insiders and outsiders ($\alpha^I = \alpha^O > 0$). In this case the expression becomes $\left.\frac{\partial \Pi^P(x)}{\partial x}\right|_{x^*} = p - c + x^*(p_x + p_s s_x)$. By definition, at the social optimum x^* we have $p - c = -u_s s_x$, and we get

$$\left.\frac{\partial \Pi^G(x)}{\partial x}\right|_{x^*} = -u_s s_x + x^*(p_x + p_s s_x) \qquad (22)$$

If insiders and outsiders have equal lobbying weight, the derivative of the government's objective function is thus equal to minus the derivative of consumer surplus, $-\left.\frac{\partial \Pi^C(x)}{\partial x}\right|_{x^*}$. The political equilibrium coincides with the social optimum only if it also coincides with the consumer's optimum. This result is due to the fact that at the social optimum, $\left.\frac{\partial W(x)}{\partial x}\right|_{x^*} = \left.\frac{\partial \Pi^C(x)}{\partial x}\right|_{x^*} + \left.\frac{\partial \Pi^I(x)}{\partial x}\right|_{x^*} + \left.\frac{\partial \Pi^O(x)}{\partial x}\right|_{x^*} = 0$. If $\left.\frac{\partial \Pi^C(x)}{\partial x}\right|_{x^*} = 0$, the social optimum implies $\left.\frac{\partial \Pi^I(x)}{\partial x}\right|_{x^*} = -\left.\frac{\partial \Pi^O(x)}{\partial x}\right|_{x^*}$. If insiders and outsiders have equal lobbying weight, this in turn means that their lobbying efforts exactly offset each other, so that the social optimum is the political equilibrium. This is by no means true in general, and the political equilibrium may end up being greater or smaller than the social optimum.

A different way of looking at the case with $\alpha^I = \alpha^O$ is in terms of the "rent-seeking through quality" and "rent-seeking through quantity" effects introduced earlier. While the rent-seeking through quantity effect will always tend to restrict the GI area, the rent-seeking through quality effect might go both ways, depending on whether the direct utility impact of a change in quality ($u_s s_x$) is greater or smaller than the price effect ($x p_s s_x$). Clearly, this depends on the specifics of consumer demand, and no general statements are possible. However, if we take an "neutral" approach and assume that changes in quality lead to parallel shifts in demand, so that $x p_s s_x$ and $u_s s_x$ cancel out, the "rent-seeking through quality" effect would be zero. In this scenario, the "rent-seeking through quantity" effect implies that if $\alpha^I = \alpha^O > 0$, the political optimum will lead to a GI region which is inefficiently small, and the gap will increase to the extent that producers have greater lobbying power.

Compared to the neutral case, we see that if demand decreases clockwise with decreases in quality, the political equilibrium with $\alpha^I = \alpha^O > 0$ will definitely generate a GI region that is inefficiently small. A clockwise decrease in demand implies that a decrease in quality has a greater effect on prices than on consumer utility. On the other hand, if demand decreases counterclockwise, the "rent-seeking through quantity" effect is counteracted by the "rent-seeking through quality" effect. If the quality effect proves strong enough, the political equilibrium may lead to an inefficiently large GI region. This will be the case if a decrease in quality has only a small effect on price but a large effect on consumer utility.

Discussion

In this section we discuss a number of issues not explicitly dealt with in our model. A first issue concerns the effects of an expansion of the GI region on the production and consumption of the good produced by the outsiders. A second issue is how international trade might affect the results. Finally, we consider what happens if changes in quality are discontinuous.

Interaction with Non-GI Production

Our model implicitly ignores what happens outside the GI region and assumes that the expansion of the GI region does not affect producer or consumer welfare in the market for the low-quality product made outside the GI region.

In general, interactions between the high-quality production of the GI region and the low-quality production outside the GI region can occur through substitutions on the supply side or on the demand side. On the supply side, expanding the GI region would decrease the production of the low-quality product, which would *ceteris paribus* raise the price of the low-quality product. On the demand side, an increased supply of high-quality products would induce a substitution away from low-quality products. This translates into a leftward shift of the demand curve for low-quality products which, *ceteris paribus*, would decrease the price of the low-quality product. The net effect in the low-quality market is thus ambiguous and would depend on the relative magnitudes of the substitution effect on the supply side and on the demand side. A priori, it is hard to make definite statements about this, especially since the expansion of the GI area reduces average quality in our model, which in turn affects the demand in both markets.

On the supply side, our basic setup assumes that there is an outside option with a payoff normalized to zero. The implicit assumption here is that changes in the GI area (and hence in the quantity of both the high-quality and low-quality product) do not affect the price of low-quality products. This would be the case, for instance, if the low-quality product is a commodity traded at world prices and supplied by a perfectly competitive industry where free entry has driven profits down to zero. This is consistent with the approach in the existing literature. In the seminal paper of Moschini et al. (2008), there are constant marginal costs at the industry level in the production of both the high-quality and low-quality product. Hence, the introduction of the GI region does not affect the price of the low-quality product in their setting. Moreover, since in their basic setup all firms are identical and produce at the minimum efficient scale, there are no profits whether for high-quality or for low-quality production. The welfare effect of introducing the GI region operates solely through the gains in consumer surplus.[15]

On the demand side, we focus only on consumer utility and expenditures related to the GI product. While such a partial equilibrium approach is commonly used, it is true that this ignores substitution effects. To the extent that the introduction or expansion of the GI region leads to a substitution away from low-quality products, this implies that our current measure of consumer surplus would tend to overstate the net gains to consumers. This is a limitation of our approach.

One way to overcome this limitation would be to model more explicitly the interaction on the consumer side between the low-quality and high-quality product. For instance, this is the approach taken by Moschini et al. (2008), who use a Mussa-Rosen demand specification which allows them to explicitly identify the net gains in consumer surplus as being due to the switch by some consumers from low-quality to high-quality products. On the other hand, the drawback of this approach is that it imposes certain assumptions on demand. In particular, consumers are assumed to buy at most one unit. In the scenario considered by Moschini et al. (2008), the introduction of the GI good thus crowds out an equivalent volume of low-quality products

[15] In an extension of their basic model, Moschini et al. (2008) do allow for upward-sloping supply curves, distinguishing two scenarios. However, in neither of these scenarios does the introduction of the GI region lead to a change in the price of the low-quality product. In the first scenario, production (whether high-quality or low-quality) is characterized by an upward sloping supply curve due to firm heterogeneity in efficiency. In this scenario, the producer surplus is the same regardless of whether the GI region is introduced or not, and the price of the low-quality product is not affected. In the second scenario, production costs are constant at the industry level, but the production of quality is characterized by an upward sloping supply curve (e.g. because of specialized inputs in scarce supply, such as land). In this scenario, the introduction of the GI area creates producer surplus, but the introduction of the GI area again does not affect the price of the low-quality product. Thus, even these extensions to the Moschini et al. (2008) model abstract from any effect on the price of low-quality products from the introduction of high-quality production. In particular, the second scenario is similar to our setup where producers in the GI region obtain profits because free entry is restricted. In reality, these profits will tend to get capitalized in land values.

without, however, affecting the price of the low-quality good. In short, in the Mussa-Rosen specification used by Moschini et al. (2008) there is no increase in the total market size (measured in volume terms) after the introduction of the GI good. This may overstate the extent of the substitution effects and may thus understate the gains in consumer surplus from the introduction of the GI region.

In summary, while in reality substitution effects on the demand side and on the supply side may exist, the present analysis has focused on a partial equilibrium model abstracting from these complications. Extending the analysis to take into account the substitution effects would require the use of explicit functional forms, which in turn have limitations.

International Trade

The present model does not distinguish between domestic and foreign consumers of the GI product. Adding trade to the model would lead to several interesting implications. Assuming the GI region has market power in world markets would create the possibility of extracting "rents" from foreign consumers, and the question of setting the GI region would then have some similarities to the question of setting an optimal tariff in the large-country scenario. As an example, the Champagne region presumably has market power outside France. The optimal area of the Champagne region (and the corresponding quantity and quality of Champagne) from the point of view of French national welfare would try to maximize the revenues obtained abroad, while balancing this against potential negative effects on the welfare of domestic consumers.

Discontinuous Changes in Quality

The model so far assumed a continuous quality function as a convenient way to represent the "quality effect". In reality, the conditions (such as soil quality) which create "terroir" may change more abruptly. However, this does not alter the main mechanisms of the model.

Assume, for instance, that there is a core region with high intrinsic quality, with a discontinuous break at a certain point $\hat{x}$ beyond which lies a surrounding area with much lower intrinsic quality. For simplicity, we assume that both the high quality and the low quality are constant. In this scenario, the quality function $\sigma(i)$ denoting the intrinsic quality at distance i is no longer continuous and decreasing. Rather, the quality function becomes a step function, as shown in Figure 5. Given that consumers cannot identify particular producers inside the region, what matters for our analysis is how a change in total area affects *average* quality. Even with a discontinuous quality function $\sigma(i)$ the average quality function $s(x)$, denoting the average quality in a given area x, is continuous (since we assume a continuum of producers). But the derivative of average quality with respect to the size of the area s_x (which plays an important role in our analysis) will be discontinuous.

This does not dramatically affect our results, although the discontinuity implies that we need to be careful in determining the optima. We demonstrate this in the bottom panel of Figure 5, where we derive the social optimum for this scenario. Since s_x discontinuously jumps from zero to a negative value at $\hat{x}$, the negative utility effect $u_s s_x$ has a similar discontinuous jump. Moreover, the equilibrium price of the GI product p will also have a 'kink' at $\hat{x}$. If $p - c$ and $-u_s s_x$ intersect to the left or to the right of $\hat{x}$, there is no problem. However, it is possible that the two curves do not intersect, but that $p - c$ passes through the discontinuity. In this case, the optimum is $\hat{x}$ and the border of the GI region coincides with the natural discontinuity in quality.

This is by no means necessary; it is still perfectly possible that the socially optimal area is smaller or larger than this area. But the discontinuity at $\hat{x}$ has some significance. In particular, imagine that we shift the $p - c$ curve vertically by varying the marginal cost c of the GI region. It is clear that there will now be a range of values for c for which $\hat{x}$ is the social optimum. Moreover, the larger the gap between the quality levels on both sides of $\hat{x}$, the larger will be the jump in $-u_s s_{\mathrm{x}}$ and the more likely it becomes that the discontinuity will be the social optimum. Similar analyses can be made for the optimum of producers, insiders and outsiders, and the political equilibrium.

Conclusion

In this paper, we developed a theoretical model to study both the socially optimal size of a GI area and the likely outcome if the area is decided by a government which is possibly susceptible to lobbying. Our analysis started from four assumptions. First, an expansion of the GI area increases total production which depresses the price of the product. Second, expansion allows the fixed costs of managing a GI area (e.g. marketing) to be spread over a larger production volume. Third, the expansion of the GI area may have a negative effect on (actual or perceived) quality, which would reduce consumers' willingness to pay. Fourth, the area of a GI region is set by governments, which can be influenced by interest groups.

We showed that the social optimum is determined by a trade-off between the positive effect on consumer utility of extra production, the negative effect on consumer utility of lower quality, and the marginal cost of operating the GI region. The social optimum implies that prices will be greater than this marginal cost if there is a quality effect. However, the social optimum may also imply that this markup is not sufficient for producers to recover their fixed costs.

Our analysis of the political equilibrium emphasizes the existence of two interest groups – insiders and outsiders. If the government aims to maximize aggregate producer surplus, the size of the GI region may be smaller or larger than the social optimum depending on two effects. The "rent seeking through quality" effect may induce either a smaller or a larger area than the social optimum, as producers take into account the effect of quality on prices and not on consumer utility. The "rent seeking through quantity" effect will always induce a smaller area. Whether the resulting area is larger or smaller thus depends on the sign of the "rent seeking through quality" effect and/or the relative magnitude of both effects. If the government aims to maximize insider welfare, the resulting area will be smaller than that which maximizes aggregate producer welfare. By contrast, if the government maximizes outsider welfare, the result is an "open access" equilibrium where rents are driven down to the point at which they just cover fixed costs.

Our analysis of the political equilibrium showed that in general the resulting GI area will be bounded by these four optima (for aggregate producer welfare, insider welfare, outsider welfare and social welfare). The political equilibrium will generally not coincide with the social optimum. Compared to the aggregate producer optimum, the insider optimum and the outsider optimum, the social optimum may be smaller than all three, larger than all three, or somewhere in between, depending on how a change in quality affects prices and consumer utility.

The theoretical model developed in this paper leads to a number of policy implications. First, the size of existing GI areas cannot simply be assumed to be optimal. Depending on the specifics of the situation, an existing GI area may be too small or too large from a social point of view. Second, the optimal size of a GI area is not merely a technical question. In recent years, European countries have modernized the process for applying for GI status by requiring that teams of experts study the requests, for instance by carefully studying whether the geology is suitable for certain wines. Our analysis shows that even if such a procedure is done without interference by interest groups, the technical outcome will be inefficient from a social point of view if consumer preferences are not taken into account. Third, proposals by producer groups regarding the size of GI areas should be evaluated critically to study the extent to which the proposed area deviates from the social optimum because of rent-seeking through quantity and/or rent-seeking through quality.

Importantly, the theoretical framework developed here points to the need to understand how changes in (actual or perceived) quality affect consumer utility compared to the effect of quality on prices. Without an understanding of the impact of quality changes on consumer utility, it is in general not possible to correctly evaluate existing GI areas or proposals for new GI areas. It may be possible, however, to use experimental or survey methods to estimate consumers' willingness to pay for different quality levels associated with the GI region. To the extent that such studies shed light on the valuations of inframarginal consumers, they could be included in the technical analysis of proposals for the introduction or expansion of GIs.

References

Ashenfelter, O. and K. Storchmann (2010) “Using Hedonic Models of Solar Radiation and Weather to Assess the Economic Effect of Climate Change: The Case of Mosel Valley Vineyards,” Review of Economics and Statistics 92(2), pp. 333–349.

Cross, R., A. Plantinga and R. Stavins (2011) “The Value of Terroir: Hedonic Estimation of Vineyard Sale Prices,” Journal of Wine Economics 6(1), pp. 1-14.

Gergaud, O. and V. Ginsburgh (2008) “Natural Endowments, Production Technologies and the Quality of Wines in Bordeaux. Does Terroir Matter?” Economic Journal 118 (June), F142–F157.

Grossman, M. and E. Helpman (1994) “Protection for Sale,” American Economic Review 84(4), pp. 833-850.

Josling, T. (2006) “The War on Terroir: Geographical Indications as a Transatlantic Trade Conflict,” Journal of Agricultural Economics 57(3), pp. 337-363.

Landi, C. and G. Stefani (2013) “Standards and Political Economy of Specialty Foods in Italy,” mimeo.

Langinier, C. and B. Babcock (2008) “Agricultural Production Clubs: Viability and Welfare Implications,” Journal of Agricultural & Food Industrial Organization 6(1), pp. 1-31.

Marette, S., R. Clemens and B. A. Babcock (2008) “The Recent International and Regulatory Decisions about Geographical Indications,” Agribusiness: An International Journal, 24(4), pp. 453-472.

Mérel, P. and R. Sexton (2012) “Will Geographical Indications Supply Excessive Quality?,” European Review of Agricultural Economics 39(4), pp. 567-587.

Moschini, G., L. Menapace and D. Pick (2008) “Geographical Indications and the Competitive Provision of Quality in Agricultural Markets,” American Journal of Agricultural Economics 90(3), pp. 794 – 812.

Mussa, M. and S. Rosen (1978) “Monopoly and Product Quality,” Journal of Economic Theory 18(2), pp. 301-317.

Simpson, J. (2011) Creating Wine. The Emergence of a World Industry, 1840-1914. Princeton University Press.

Spence, M. (1975) “Monopoly, Quality and Regulation,” Bell Journal of Economics 6(2), pp. 417-429.

Spence, M. (1976) “Product Selection, Fixed Costs, and Monopolistic Competition,” Review of Economic Studies 43(2), pp. 271-235.

Stevenson, T. (2008) “I have six billion euros. Who will give me twelve?”, WinePages.com, available at www.wine-pages.com/guests/tom/champagne-expansion.htm [accessed 23 Dec. 2013].

Swinnen, J. and T. Vandemoortele (2008) "The Political Economy of Nutrition and Health Standards in Food Markets," Review of Agricultural Economics 30(3), pp. 460-468.

Swinnen, J. and T. Vandemoortele (2011) "Trade and the Political Economy of Food Standards," Journal of Agricultural Economics 60(2), pp. 259-280

WTO (1994) "Uruguay Round Agreement: TRIPS. Part II—Standards Concerning the Availability, Scope and Use of Intellectual Property Rights, Sections 3: Geographical Indications," World Trade Organization, Geneva

Appendix. Side Payments from Outsiders to Insiders

Assume that outsiders can make side payments to the existing producers, in effect "buying" their entry into the GI region (or more precisely buying the insiders' support for an expansion). In this case, potential entrants would be willing to pay up to their profits $p - c - \frac{F}{x}$. The first order condition of the existing producers, deciding upon an expansion, then becomes

$$\frac{\partial \Pi^I}{\partial x} = (p - c) + x(p_x + p_s s_x) = 0$$

This is exactly the same first order condition as that which maximizes aggregate producer welfare (equation (15)). The result is intuitive: if potential entrants can make side payments, the existing producers will internalize the positive effect of increased revenues for these new producers. The possibility of side payments makes the GI organization behave as if it maximized aggregate producer welfare instead of the welfare of the existing producers.

Figures

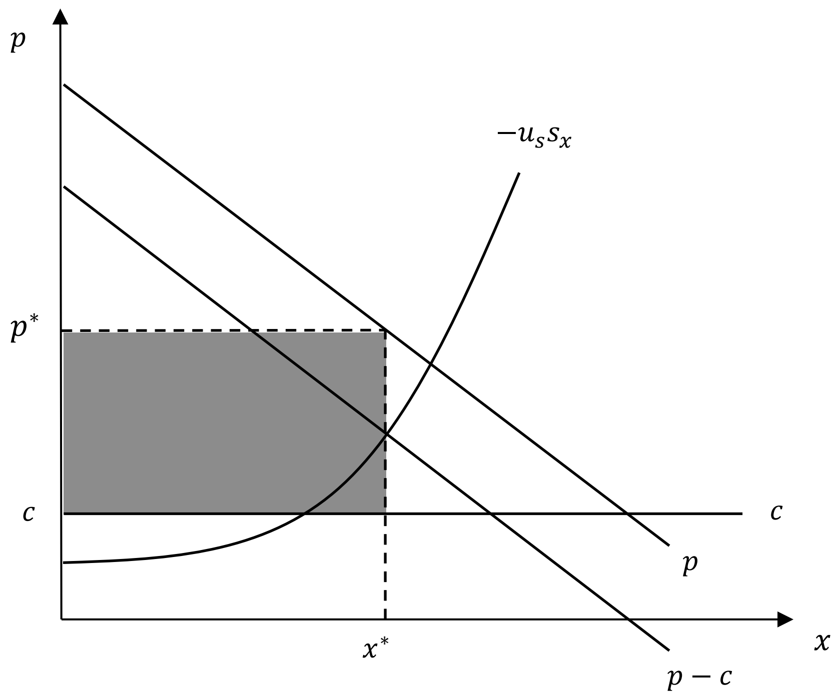


Figure 1. Socially optimal size of the GI region

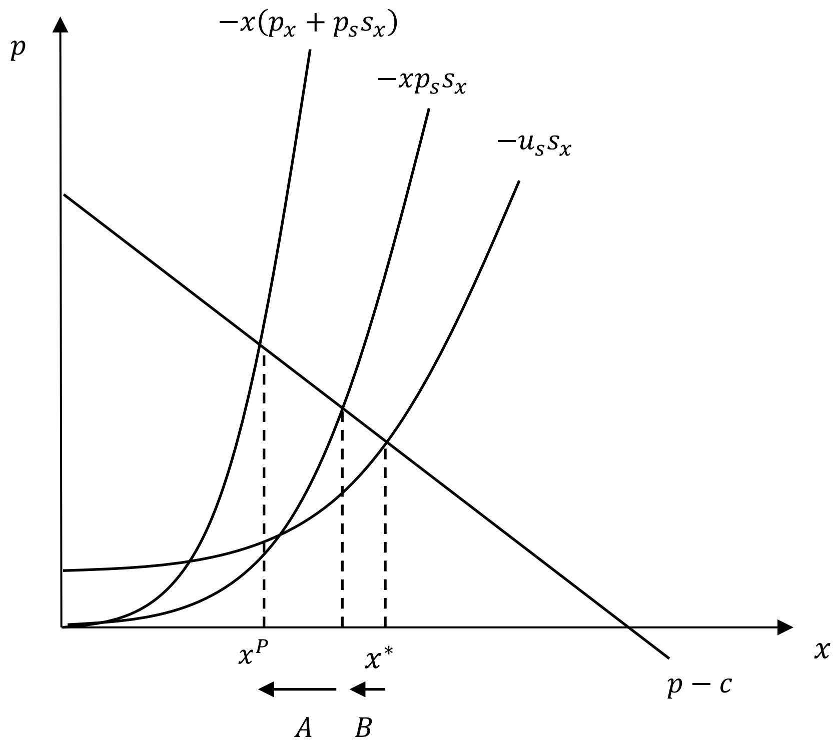


Figure 2. Optimal size of the GI region for aggregate producer surplus

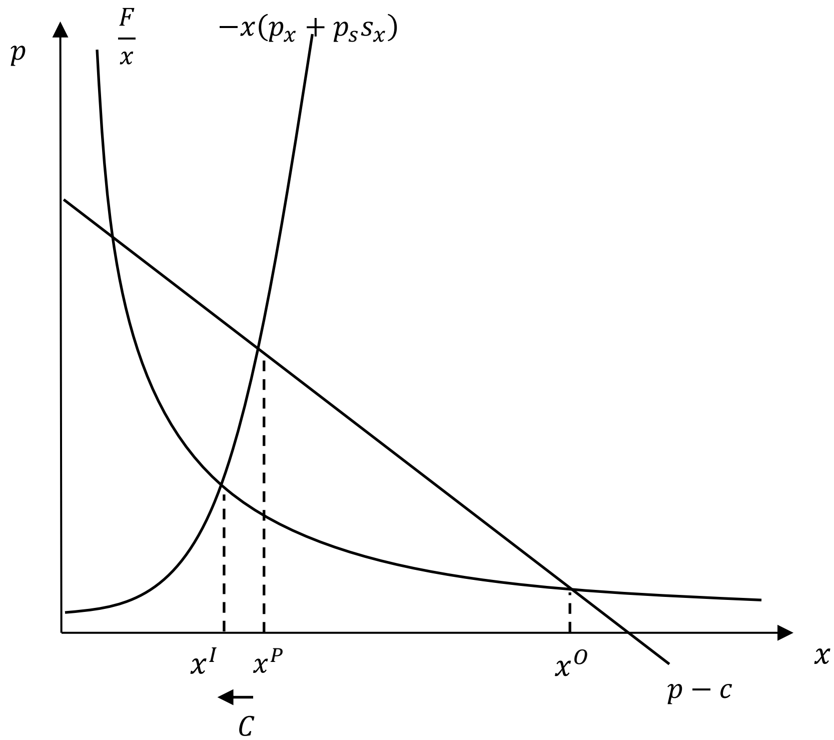
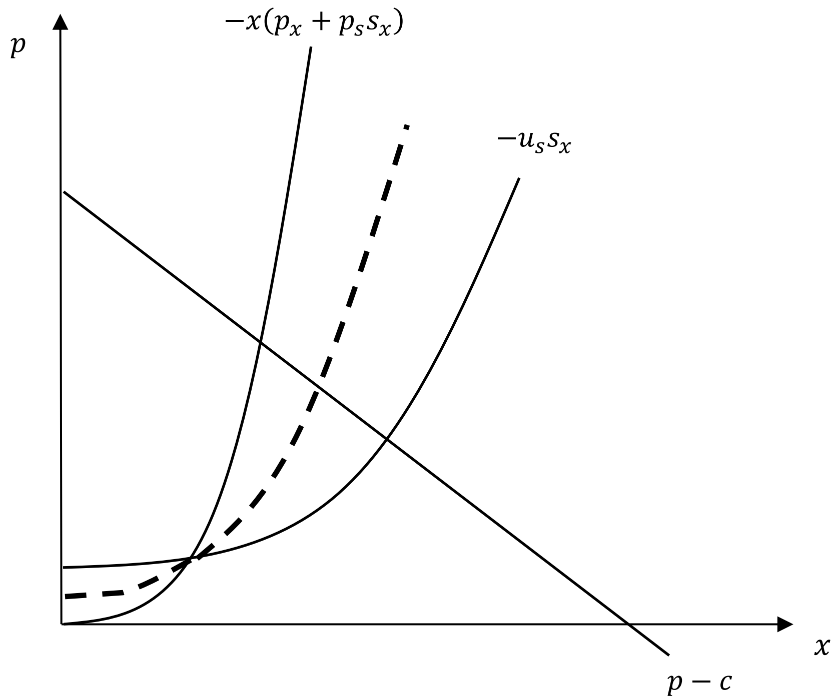
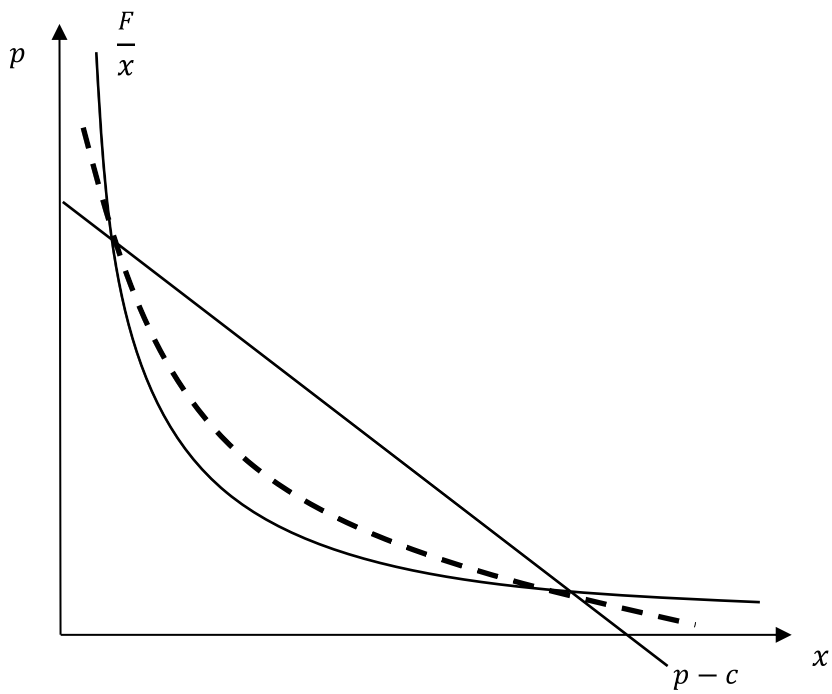


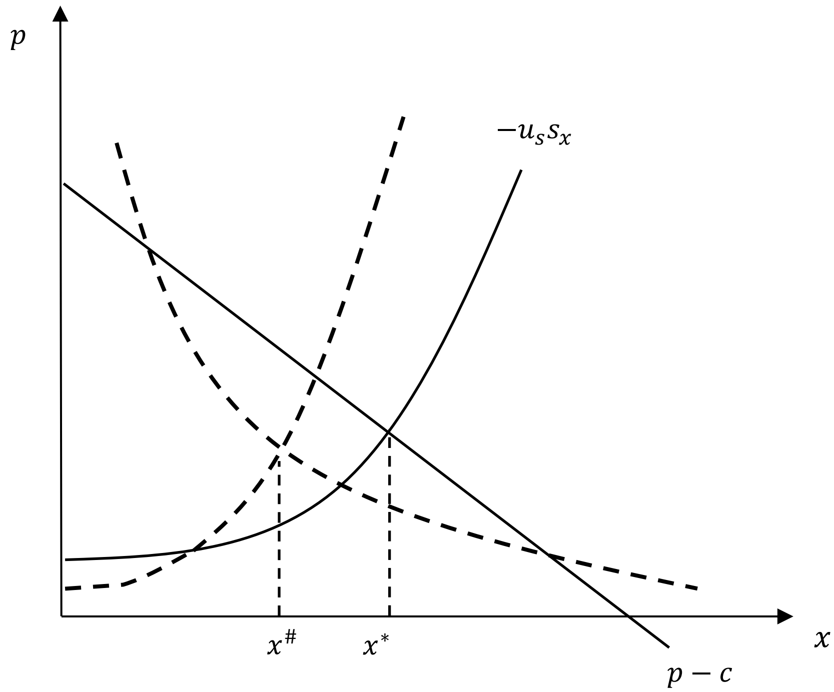
Figure 3. Optimal size of the GI region for insiders and for outsiders



(a) The right-hand side as weighted average



(b) The left-hand side as weighted average



(c) The political equilibrium

Figure 4. Determination of the Political Equilibrium

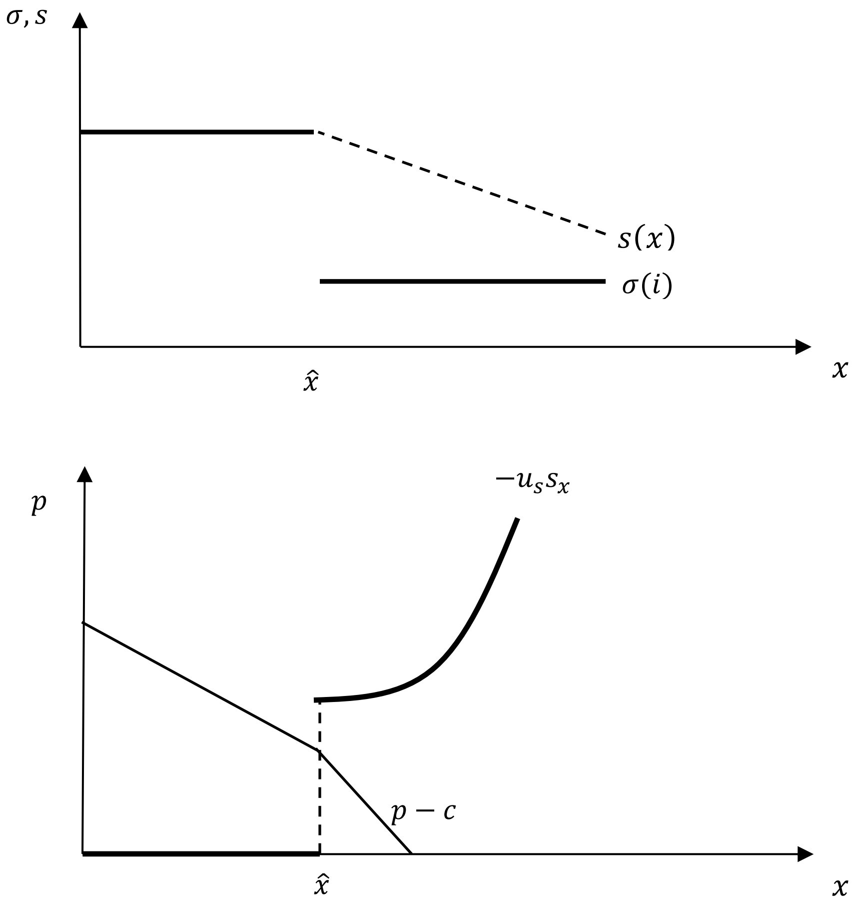


Figure 5. Discontinuous Changes in Quality